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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,370	05/26/2006	Massimo Brusarosco	07040.0244	4087

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EXAMINER	
TO, TUAN C	

ART UNIT	PAPER NUMBER
3663	

MAIL DATE	DELIVERY MODE
03/12/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,370	BRUSAROSCO ET AL.	
	Examiner	Art Unit	
	TUAN C. TO	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *48,49 and 51-94* is/are pending in the application.

4a) Of the above claim(s) *67-94* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *48,49,51-59 and 62-66* is/are rejected.

7)☒ Claim(s) *60, and 61* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 February 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 48, 49, 51-59, and 62-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (US 20030058118A1) and in view of Frey et al. (Us 5749984A).

As to claims 48 and 62, Wilson teaches a vehicle and vehicle tire monitoring system/method for determining the load-induced deflection or deformation of a vehicle tire based on deflection-related information such as tire load, etc.

Wilson teaches the act of acquiring a first signal comprising a first signal portion representative of a radial deformation. For example, in the abstract, Wilson teaches that the tire deflection region is detected by sensing the acceleration of the rotating tire by means of accelerometer mounted on the inner surface of the tire.

Wilson further teaches measuring an amplitude of the radial deformation in the first signal portion (see figure 5, paragraphs 0068-0071, the radial accelerometer 92 senses an outward centrifugal radial acceleration; see paragraph 0088, the peakTo PeakAcceleration is defined as the difference between the accelerations off-contact acceleration and the on-contact).

Wilson further teaches that the first signal portion is representative of the radial deformation to which a first tread area portion of the tire is subjected during passage of the first tread area portion through a contact region between the tire and the rolling surface (see figure 2; and abstract); and deriving the load exerted on the tire from the amplitude (see abstract).

Wilson further teaches measuring a difference between a maximum value of the first signal in the first signal portion and a minimum value of the first signal in the first signal portion (see figure 5, the peak to peak acceleration is a measurement of the maximum value of the first signal and the minimum value of the first signal in the first signal portion).

Wilson merely fails to disclose the steps of "estimating a rotation speed of the tire corresponding to the radial deformation, estimating an inflation pressure of the tire corresponding to the radial deformation, and deriving the load exerted on the tire from the rotation speed and inflation pressure.

Frey et al discloses another tire monitoring system comprising the steps of estimating a rotation speed of the tire corresponding to the radial deformation. For example, in the abstract, Frey et al. teaches that sensor electrical signals are digitized and counted to determine deflection, tire speed and number or tire revolution; estimating an inflation pressure of the tire corresponding to the radial deformation (see column 3, lines 56-65), and deriving the load exerted on the tire from the rotation speed and inflation pressure (see column 5, lines 64-67 to column 6, lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the vehicle tire monitoring system/method as taught by Wilson by substituting the teaching of the tire vehicle monitoring system/method as taught by Frey et al. in order to enhance a vehicle tire monitoring system that has capability of controlling the length of the contact area between the tread surface of the tire and the ground surface so that the tire has optimum performance.

As to claim 49, Wilson discloses the first signal comprises a radial acceleration signal (see abstract).

As to claims 51, 56, and 57, Wilson further discloses low-pass filtering the first signal before measuring the amplitude of the radial deformation (see figure 10, the low

pass filter 108 measure the accelerometer signal before measuring peak to peak acceleration value).

As to claim 52, Wilson further discloses measuring an average value of the first signal in a second signal portion; wherein a time period associated with the second signal portion does not overlap a time period associated with the first signal portion (see figure 5).

As to claim 53, Frey et al discloses the step of determining the rotation speed of the tire comprising measuring an average value of the first signal corresponding to an entire revolution of the tire (see abstract).

As to claims 54, and 55, Wilson discloses another step of acquiring a second signal representative of a radial acceleration to which a second tread area portion of the tyre is subjected (see figure 5).

As to claim 58 and 59, Wilson discloses the step of providing characteristic functions describing an expected radial-deformation amplitude versus rotation speed that correspond to predetermined conditions of load exerted on the tyre and inflation pressure (see figure 4).

As to claims 63-66, Wilson additionally discloses a brake control system, a steering control system, and suspension control system, and active roll control system (see paragraphs 0065).

Allowable Subject Matter

Claims 60 and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The examiner has found none of the cited prior art, neither alone nor in combination, fairly suggests the limitation as recited in claim 60.

Response to Arguments

In response to the applicant's request for continued examination, the examiner has reconsidered the application and the cited prior art previous applied in the rejection.

At least claim 48 is currently rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (US 20030058118A1) and in view of Frey et al. (Us 5749984A).

The applicant argued in his response that the cited reference to Wilson fails to disclose measuring an amplitude of a first signal portion representative of a radial deformation and deriving the load exerted on the tire from the amplitude. The applicant further argued that Wilson merely discloses detecting deflection points of signals representative of acceleration of the rotating tire, and determining elapsed time between the deflection points to determine deformation of the tire.

In contrast, the examiner has discovered Wilson discloses a system/method for determining the load-induced deflection or deformation of a vehicle tire comprising the steps as currently claimed. As disclosing the method for determining the load-induced deflection or deformation of a vehicle tire, Wilson discloses the steps of measuring an

amplitude of a first signal portion representative of a radial deformation and deriving the load exerted on the tire from the amplitude.

As disclosed in Wilson, the load-induced deflection or deformation of a vehicle tire is detected by sensing the acceleration of the rotating tire by means of an accelerometer mounted on the tire. In Wilson, the contact region detector (50a) is secured within the loaded tire (36). The detector comprises a radial accelerometer (92), and that the radial accelerometer (92) is capable to measure radial deformation of the tread area portion of the tire (36) (see further figure 3; and the associated paragraphs 0068, and 0069). The radial accelerometer (92) senses an outward centrifugal radial acceleration.

As illustrated in Wilson, when the tire rotates and accelerometer is off of the contact region, a high centrifugal acceleration is sensed. And when the accelerometer is on the contact region and not rotating, a low acceleration is sensed. The deflection points are determined at the points where the acceleration transitions between the high and low values. For that reason, Wilson discloses the high amplitude of acceleration and the low amplitude of acceleration, and the difference between such the high and low value defines the radial deformation of the tire.

Furthermore, in Wilson, the tire load is derived from tire pressure, tread width, and tire-road contact length.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the vehicle tire monitoring system/method as taught by Wilson is modified by substituting the teaching of the tire vehicle monitoring system/method as taught by Frey et al. for the purpose of enhancing a vehicle tire monitoring system that has capability of controlling the length of the contact area between the tread surface of the tire and the ground surface so that the tire has optimum performance.

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (571) 272-6985. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tuan C To/

Primary Examiner of Art Unit 3663/3600

March 3, 2010